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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,178	08/14/2001	Donald P. Matthews JR.	2875.0500001	8980

26111 7590 04/15/2009  
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.  
1100 NEW YORK AVENUE, N.W.  
WASHINGTON, DC 20005

EXAMINER
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POPHAM, JEFFREY D

ART UNIT	PAPER NUMBER
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2437

MAIL DATE	DELIVERY MODE
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04/15/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/929,178	<b>Applicant(s)</b> MATTHEWS, DONALD P.	
	<b>Examiner</b> JEFFREY D. POPHAM	<b>Art Unit</b> 2437	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 2,3,28-30,32-36 and 44-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,3,28-30,32-36 and 44-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20090327</u> .  | 6) <input type="checkbox"/> Other: _____                          |

***Remarks***

Claims 2, 3, 28-30, 32-36, and 44-46 are pending.

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on 2/2/2009 has been entered.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 45 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 46 refers to performing authentication operations on data, then sending the result of the authentication operations to have "encryption operations" performed with the remaining payload data. However, claim 45 attempts to reverse this, stating that encryption operations (in this case, comprising decryption) occur before the authentication operations, and that the result of the encryption operations are passed to the authentication component.

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Since the independent claim sets forth a particular order in which "encryption operations" (apparently meaning either encryption or decryption) are performed, the dependent claims cannot change this order.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2, 3, 28-30, 33, 35, 36, and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaplan (U.S. Patent 6,704,871) in view of Larsen (U.S. Patent 7,068,791), Huynh (U.S. Patent 6,983,366), Fumy (Fumy, Walter, "Internet Security Protocols", 1998, pp. 186-208, obtained from Springerlink).

Regarding Claim 46,

Kaplan discloses a method for accelerating cryptographic processing of a plurality of data packets according to a network security protocol, comprising:

Receiving, in a chip, data for a first packet from an off-chip processor (Column 27, line 55 to Column 29, line 12; Column 39, lines 25-42; Column 41, lines 16-51; and Column 43, line 1 to Column 44, line 31);

Performing authentication operations on data for the first packet to generate an authentication code (Column 37, line 41 to Column 38, line 62);

Performing encryption operations on a set of data for the first packet, wherein the encryption operations on the set of data for the first packet are performed in parallel with the authentication operations for the first packet (Column 37, line 41 to Column 38, line 62);

Receiving, in the chip, data for a second packet (Column 27, line 55 to Column 29, line 12; Column 37, line 41 to Column 38, line 62; Column 39, lines 25-42; Column 41, lines 16-51; and Column 43, line 1 to Column 44, line 31);

Adding padding to remaining data to be encrypted for the first packet to generate a first packet data block having a predefined length (Column 37, line 41 to Column 38, line 62; Column 39, lines 26-42; Column 41, lines 16-51; and Column 42, lines 29-54);

Performing encryption operations on the first packet data block (Column 37, line 41 to Column 38, line 62);

Performing authentication operations on data for the second packet (Column 37, line 41 to Column 38, line 62); and

Passing the cryptographically processed first packet from the chip to the off-chip processor (Column 27, line 55 to Column 29, line 12; and Column 43, line 1 to Column 44, line 31);

Wherein the authentication and encryption operations for the first packet are performed within the chip in a single pass (Column 37, line 41 to Column 38, line 62; and Column 41, lines 16-51);

But does not explicitly disclose that the authentication operations are performed on a set of header data and the payload data of the packet, combining remaining payload data for the first packet with the authentication code for the first packet, that the padding is added to the combined remaining payload data and authentication code, or that the authentication operations for the second packet are performed simultaneously with the encryption operations on remaining payload data and authentication code for the first packet.

Larsen, however, discloses that the authentication operations are performed on a set of header data and the payload data of the packets (Column 7, lines 6-45). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the secure packet system of Larsen into the cryptographic co-processor of Kaplan in order to provide multiple authentication codes within each packet, thereby allowing the system to determine whether a message came from a proper

sender via the header's authentication code, so as to allow for adaptive retransmission, even when the payload of the packet was received in error (and thus, the packet's authentication code is incorrect).

Huynh, however, discloses that the authentication operations for the second packet are performed simultaneously with the encryption operations on the remaining data to be encrypted for the first packet (Column 2, lines 24-35; Column 6, lines 19-38; and Column 8, line 23 to Column 9, line 8). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the packet processing techniques of Huynh into the cryptographic co-processor of Kaplan as modified by Larsen in order to allow another packet to be processed as soon as a particular resource (encryption or authentication unit) becomes available, so the system need not wait until the first packet is completely processed before beginning processing of another packet, thereby allowing the system to process network security protocol data faster and more efficiently.

Fumy, however, discloses combining remaining payload data for a packet with the authentication code for the packet; adding padding to the combined remaining payload data and authentication code for the packet to generate a packet data block having a predefined length; and performing encryption operations

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on the packet data block (Pages 198-199). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the network security protocols of Fumy into the cryptographic co-processor of Kaplan as modified by Larsen and Huynh in order to provide security using secure, highly-used, and well-known protocols, and/or to gain cryptographic security between two parties and interoperability between differently coded programs.

Regarding Claim 2,

Kaplan as modified by Larsen, Huynh, and Fumy discloses the method of claim 46, in addition, Fumy discloses that the network security protocol is SSLv3 (Pages 196-197).

Regarding Claim 3,

Kaplan as modified by Larsen, Huynh, and Fumy discloses the method of claim 46, in addition, Fumy discloses that the network security protocol is TLS (Pages 197-203).

Regarding Claim 28,

Kaplan as modified by Larsen, Huynh, and Fumy discloses the method of claim 46, in addition, Kaplan discloses aligning the received set of header data for the first packet (Column 39, lines 25-42; Column 43, lines 1-28; and Column 44, lines 35-43).

Regarding Claim 29,



Kaplan as modified by Larsen, Huynh, and Fumy discloses the method of claim 28, in addition, Kaplan discloses storing the aligned set of header data for the first packet in a FIFO to accumulate a predefined amount of data before commencing the authentication operations (Column 38, lines 50-57).

Regarding Claim 30,

Kaplan as modified by Larsen, Huynh, and Fumy discloses the method of claim 29, in addition, Kaplan discloses that the predefined amount of data comprises 512 bits (Column 38, lines 50-57).

Regarding Claim 33,

Kaplan as modified by Larsen, Huynh, and Fumy discloses the method of claim 46, in addition, Kaplan discloses aligning, for encryption operations, the set of data in the payload data for the first packet to provide the aligned data for the encryption operations (Column 39, lines 26-42).

Regarding Claim 35,

Kaplan as modified by Larsen, Huynh, and Fumy discloses the method of claim 33, in addition, Kaplan discloses that aligning, for encryption operations, comprises adding padding (Column 39, lines 26-42).

Regarding Claim 36,

Kaplan as modified by Larsen, Huynh, and Fumy discloses the method of claim 33, in addition, Kaplan discloses storing the aligned set of data in the payload data for the first packet for the encryption operations in a FIFO to accumulate a predefined amount of data before commencing the encryption operations (Column 39, lines 26-42; and Column 40, lines 43-52).

Regarding Claim 44,

Kaplan as modified by Larsen, Huynh, and Fumy discloses the method of claim 46, in addition, Kaplan discloses that the authentication operations are performed by an authentication component of the chip; the encryption operations are performed by an encryption component of the chip; and authentication data generated by the authentication component is passed to the encryption component and aligned by the encryption component (Column 38, lines 58-62; Column 39, lines 25-42; Column 40, line 42 to Column 41, line 15; Column 42, lines 12-29; and Figure 9); and Fumy discloses passing authentication data to an encryption component (Pages 198-199).

Regarding Claim 45,

Kaplan as modified by Larsen, Huynh, and Fumy discloses the method of claim 46, in addition, Kaplan discloses that the authentication operations are performed by an authentication component of the chip; the encryption operations are performed by

an encryption component of the chip; and decrypted data generated by the encryption component is passed to the authentication component and aligned by the authentication component (Column 38, lines 58-62; Column 39, lines 25-42; Column 40, line 42 to Column 41, line 15; Column 42, lines 12-29; and Figure 9).

4. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaplan in view of Larsen, Huynh, and Fumy, further in view of Ganapathy (U.S. Patent 6,557,096)

Kaplan as modified by Larsen, Huynh, and Fumy discloses the method of claim 28, in addition, Larsen discloses that the header data for the first packet comprises content type and length (Column 7, lines 6-45; and Column 9, lines 1-23); but does not explicitly disclose that the data is aligned into rows of data where each row of data contains a single type of data.

Ganapathy, however, discloses that the data is aligned into rows of data where each row of data contains a single type of data (Column 17, lines 38-55; Column 19, line 35 to Column 20, line 25; and Figure 1). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the data aligner of Ganapathy into the cryptographic co-processor of Kaplan as modified by Larsen, Huynh, and Fumy in order to properly align and format data before sending it for

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mathematical (in this case, authentication and encryption/decryption) operations, so that the data has any needed sign and guard bits prepended thereto.

5. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaplan in view of Larsen, Huynh, and Fumy, further in view of Gaytan (U.S. Patent 5,638,367).

Kaplan as modified by Larsen, Huynh, and Fumy does not explicitly disclose that aligning comprises removing non-valid data.

Gaytan, however, discloses that aligning comprises removing non-valid data (Column 1, line 62 to Column 2, line 29). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the data packing system of Gaytan into the cryptographic co-processor of Kaplan as modified by Larsen, Huynh, and Fumy in order to gain better throughput and performance by only sending valid data past the buffer.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY D. POPHAM whose telephone number is (571)272-7215. The examiner can normally be reached on M-F 9:00-5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise can be reached on (571)272-3865. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeffrey D Popham  
Examiner  
Art Unit 2437

/Jeffrey D Popham/  
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